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ROCKY MOUNTAIN AGRICULTURE: ABUNDANT OR DEPLETED?

A continuing viable agriculture in the Rocky Mountains is fully in the nation's interest. The major sessions of this symposium--physical resources, human resources, and food and politics--cover well the elements that are essential to the future of your agriculture.

In opening this session on physical resources, I want to acknowledge the extensive overlay of all the symposium elements, one on the other.

Furthermore, I want you to know that the U.S. Department of Agriculture is in full accord with having decisions on agriculture in the Rockies made by and with the people who live here.

The shape of agriculture in the Rocky Mountain states has been forged from three controlling types of physical resources: the dominating mountains, the life-giving rivers, and the interspersed valleys and extensive plains.

To many who are uninformed and inexperienced, the massive mountain ranges are symbols of rugged durability and changelessness. To you who know them, however, the surface of these peaks is brittle and crumbly and is constantly undergoing change wrought by wind, water, avalanches of snow, and earthquakes. The changes run the gamut from miniscule to catastrophic, but all of them are important. They all affect the delicate balance of existence for plants and animals that have adapted to the shallow soils and alpine terrain.

In addition to natural changes, manmade, earth-gouging machines can strip away the thin layer of soil, open gaping sores in a mountainside, and foster erosion. Exploitive cutting of timber on steep slopes can further gully the mountainsides and fill the streams with silt.

Remarks prepared for delivery by M. Rupert Cutler, Assistant Secretary for Natural Resources and Environment, before the Conference on the Future of Agriculture in the Rocky Mountains, Sun Valley, Idaho, October 25, 1979

Water from the mountains always has been the key to agriculture in the Rockies. Without it, people and livestock have died and crops have dried up and blown away. Even in the best of locations, water always has been a limited resource.

The arid and semi-arid valleys and plains form the foundation for a ranching-farming agriculture. In the early days land was considered free for claiming and without limit. The Indians and Spaniards found whole valleys and plains to their liking. The sons and daughters of New England fled small, stone-fenced farmsteads to the expansive, open slopes of the Rockies.

The mountains, water, valleys, and plains are the physical resources that determine the agriculture of the Rocky Mountains. It is no wonder that issues regarding these often explode into flaming controversy.

Among the physical resource issues that demand solution, water for irrigation, energy, and range head the list.

Irrigated agriculture in the eight Rocky Mountain states includes over a fourth of the irrigated farms and 30 percent of the irrigated acres in the United States. Nevada and Arizona have little, if any, nonirrigated cropland. Over 80 percent of the value of crops produced in Utah, Idaho, Wyoming, and New Mexico comes from irrigated lands. Colorado has the largest irrigated acreage of the Rocky Mountain states, and that land produces over half the value of Colorado's crops.

With or without statistics, it is obvious that agriculture in the Rockies would scarcely exist except for irrigation. This is true whether we are talking about flooding a hay meadow with water from Troublesome Creek in Colorado or sophisticated diversion and conveyance systems for irrigating citrus and dates from the Salt River in Arizona.

It would be a gross understatement to characterize water for irrigation in the Rocky Mountains as a limited resource. There are times when it's downright scarce. Since the supply, primarily from snow melt, cannot be controlled, there are only two choices for ensuring enough for the future. We can either limit demand or conserve use.

Limiting demand for water sometimes seems about as possible as slowing an avalanche. Water consumption for agriculture from the Yellowstone River is expected to increase by 45 percent in the next 20 years. An estimate for the upper Colorado region projects an increase of 25 percent. Use of water for electrical power and mining will more than triple.

The greatest threat to water supplies comes, however, from the downriver demand of population centers and future growth of synfuel production. Although the burgeoning population and industrial development of California is a major source of concern to water-conscious people in the Rockies, they don't have to look that far away to find a problem. The Rockies have their own expanding centers where masses of people water their lawns and refill their swimming pools, and industries guzzle enormous amounts of water that could be growing crops.

The controversial competition between upriver and downriver uses is an old story to you who live in the Rockies. You reduced these difficulties within agriculture with laws establishing senior and junior appropriators of water and other regulations. But these laws were not sufficient to deal with the complex interstate traverse of the rivers. Therefore, you have developed a number of interstate compacts or have requested court apportionment of water supply.

The existence of these laws and compacts has been essential to achieving some measure of order in the allocation of water uses. However, as new demands arise and the traditional ones increase, the existing regulations must be examined critically and modified as needed to prevent their becoming barriers to the maintenance of a strong agriculture.

The development of a synfuel industry is a good example. President Carter has committed his administration to an all-out effort to make this country self-sufficient in energy resources by 1990. One of the primary targets to do this is the development of shale oil deposits.

To say that some in the Rockies are concerned about this issue is to bury the truth. Many are outright enraged.

There appears to be general agreement that an adequate supply of water exists in the upper Colorado basin, but there is a mismatch between the location of the richest and largest oil shale deposits in northwestern Colorado and the location of the greatest amount of unused water in northeastern Utah and southwestern Wyoming.

Therefore, unless costly aqueducts bring in surplus water from adjoining sub-basins, the oil shale industry must depend on local unused water. To do so means buying water rights--most of which are now used for agriculture. Unlimited purchase of surface water rights by companies for a 2-million-barrels per day industry could withhold water from 20 percent of the acreage currently irrigated in the oil shale regions. Industry needs for surface water could be reduced initially by using ground water, but surface and ground flows are connected; and eventually both would be depleted.

Similar competition for water will increase between agriculture and developing fuel industries in the Yellowstone Basin. Withdrawals of Yellowstone water for industry could far exceed the 350 to 450 thousand acre-feet estimated to be available above instream needs and existing consumption. Additional impoundments or new inter-basin aqueducts will be expensive. Ground water from aquifers is fully committed, and potential supplies from the deep Madison aquifer are highly variable.

In the face of this competition, if Rocky Mountain agriculture is to remain viable and provide its potential contribution to the nation's food and fiber needs, a strenuous cooperative effort is required in which local, state, and federal people and agencies participate.

Even if we are successful in holding agriculture's share of water in the Rocky Mountains, we have much to gain from conservation of both water and energy. In fact, to some extent, they go hand in hand. The President's policies on both water and energy strongly emphasize conservation.

The major water losses from off-farm conveyance systems result from seepage through unlined canals and through cracks and breaks in lined canals. They also result from operational spills because of poor system design or management. Other off-farm losses come from excessive vegetative growth in and adjacent to canals.

The major losses on-farm result from surface runoff, deep percolation of applied irrigation water, and seepage from unlined field ditches.

The recent interagency report entitled "Irrigation Water Use and Management," estimates the savings from a comprehensive irrigation water conservation program in 17 western states. For the mountain areas of Colorado, Wyoming, Montana, Idaho, and New Mexico, diversions could be reduced by 3.5 million acre-feet, or 20 percent. Reducing consumption losses could make 300 thousand acre-feet available for other use. Canal and ditch lining, both off-farm and on-farm, are the most important measures--along with changes in method and land leveling on-farm. The off-farm measures would be nearly twice as costly as those on-farm. There would be dollar savings overall, but the benefits to ranchers and farmers would not always be sufficient to justify the use of private capital.

In the lower valleys and plains, percentage reductions in diversions would be similar. Opportunities for improvements are canal lining, consolidation, realignment, and enlargement of off-farm installations. Automation, ditch lining, land leveling, tailwater recovery systems, and control structures are important on-farm measures. Savings to farmers would result from reduced pumping. Reduced pumping also would save energy, and as energy prices rise, the dollar savings would increase.

I have discussed the quantity of water supplies at length. However, water quality is equally important, not only to agriculture but also to other uses. It is well known that concentration and loading of constituents from irrigation degrades water quality. In addition, reduced streamflow conditions affect fisheries, wildlife, and recreation.

Increased efficiency of irrigation systems can increase degradation of water quality. We know that the seepage from both conveyance and on-farm distribution systems has created habitat for many diverse forms of fish and wildlife. Reducing or eliminating that seepage can destroy that habitat. Therefore, as we move to save irrigation costs in dollars and energy, we must appraise the environmental impacts and be ready to accept the necessary tradeoffs.

Ranchers and farmers are vulnerable to energy issues other than competition for water. Agriculture in the Rocky Mountains, as well as the rest of the country, is energy-dependent. Rising costs of energy can wipe out the benefits of irrigation.

We must accelerate our use of substitutes for fossil fuel energy. We can increase the use of organic wastes and legumes as fertilizer. We have a real opportunity to increase energy production from biomass, particularly from forest residues and other timber not suitable for lumber or pulp. We can continue to expand our uses of active and passive solar systems. We can multiply our current use of wind power and lowhead hydropower.

Much of the technology to exploit these opportunities is already available. However, with additional research there is a potential for major increases in efficiency.

As with water, conservation is a vital key to keeping energy costs down. Preventing soil erosion and thus maintaining yields is a major source of energy saving. Similarly, preservation of prime farmland can provide long-term energy savings. Windbreaks and shelterbelts in the plains can help save energy in heating farm homes, snow removal, livestock feeding, and crop production. Increased productivity of rangelands can reduce the need for grains that have high-energy requirements for their production.

The improvement of rangelands, of course, is important to Rocky Mountain agriculture for more reasons than potential energy savings. The Rocky Mountain states contain 60 percent of the rangeland in the 48 contiguous states. In addition, 30 percent of the grazed forest land is in the area.

A recent study within the department indicates that the demand for range grazing in the Rocky Mountain states could increase by 36 percent in the next 50 years. This would result from the ever-growing demand for red meat.

Of course, rangelands provide forage for more than livestock. There are an estimated 63 thousand wild horses and burros grazing on the range of 10 western states. The big game population of seven of the eight Rocky Mountain states totals over 2 million. (Data are not available for Montana.)

Although the major product of the range is forage for livestock, big game, and other animals, the range also yields many other products. Rangelands are important sources of coal, oil, uranium, and other minerals. They provide sites for many forms of outdoor recreation, such as hunting, hiking, off-road vehicle uses, and rock-hounding, to name a few.

Some old and well established range uses are growing in importance. Harvesting of pinyon nuts once was largely an activity of some Indian tribes in the southwest. Now it is a popular recreation activity for many people. Juniper has traditionally provided fence posts and, along with pinyon, also furnished firewood for ranchers. Now with rising fuel costs, urban dwellers also are demanding juniper and pinyon for use as fuel. The demands are so great in some areas that supplies have to be managed closely.

Competition with established uses of rangelands will increase if the development of certain specialty crops proves commercially feasible. These crops include guayule for rubber, euphorbia for petroleum, and jojoba for industrial oil. The production of these could involve millions of arid rangeland acres in New Mexico, Arizona, and other southwestern states.

If we are to meet all these demands for range, we must bring about substantial improvements in the productivity of these lands.

This week, Secretary of Agriculture Bob Bergland signed a memorandum on range policy. It calls for increased cooperation and coordination with federal, state, and private organizations, institutions, and individuals on range programs. Agencies are to improve the quality of their service to range owners and users. They are to accelerate the conservation and improvement of range resources and prevent duplication and overlap of activities. Emphasis also is to be placed on strong research, extension, and technical assistance programs. Additional emphasis is to be given to financial assistance through loans and cost-sharing.

The agencies in the department have been asked to respond to the requirements of this memorandum within the next year.

Although water, energy, and rangelands represent three of the major physical resource issues in the future of Rocky Mountain agriculture, we should not overlook the forest lands. Forest and agriculture lands are not really separable in this region. They overlap and intermingle so that the management of one affects the management of the other. What happens to the forest affects the quantity and quality of water for agriculture. What happens to range grazing affects the regrowth of forests. Both are important to the fish and wildlife of the area.

Like water, energy, and rangelands, the forest lands are faced with mounting demands for multiple uses. Without increased forest productivity, this country won't be able to meet the timber demands of the future. By undertaking intensive management practices, we can increase the productivity of the national forests. Some increase also is possible in private commercial forests. However, the greatest potential for increased productivity is in the farm and private, nonindustrial forest lands. We must learn how to unlock the potential of all the forest resources.

When increasing forest productivity, we also must provide the public needs for recreation, wilderness, livestock forage, and other multiple uses. To do this for the national forests, we have been engaged in a nationwide assessment of forest resources and other developing optimal policies to achieve the important national goals.

In January, we expect the President to recommend a national forest policy to the Congress. We will address the issues of what we need, how to meet these needs, and how we will handle the inherent tradeoffs among timber and nontimber values.

The issue of public ownership of land in the Rocky Mountains and the rest of the west overrides all four of the physical resource issues I have mentioned. All eight states contain huge acreages of public domain. The federal government owns nearly a third of the land in Montana and nearly seven-eighths of the land in Nevada. The other six states are in between. Everyone knows that he who owns the land controls the resources.

The dominant federal presence in these states tends to distort normal federal-state-private landholder relations. As the population of the Rocky Mountain area has grown, people find that they are not only pushed up against each other, but more often than not, they are confronted with the ever-present federal boundaries.

More than that, people are constantly hitting a snag on one or more of the innumerable federal, state, and local regulations regarding water, land, environment, grazing, forestry, and energy.

A recent letter typifies the feelings of many in the Rocky Mountains towards their encroaching neighbors and the federal government.

A lady from Colorado wrote Secretary Bob Bergland that she had written to the President and people in USDA were the last ones she wanted to deal with about her problem.

Her problem was with the ditch that is owned by someone else and abuts her farm. In cleaning the ditch, the owners had dug it deeper than necessary for the amount of adjudicated water.

As a result, she can't get across the ditch anymore. The bank erosion is undermining a pipe from a spring she owns on the upper side of the ditch. This lets the spring water run into the ditch instead of where she wants it. The erosion also is causing landslides and is threatening to cut her land in two.

She wants help. She said the Soil Conservation Service couldn't do anything for her. She wouldn't deal with the Forest Service. She had to use a lot of money stopping the Forest Service from getting three entrances to her land for an oil company.

She had hired a lawyer, and he didn't help her--just took her money. She had only the President to turn to for help, and she was going to write him again.

This letter is only one of hundreds we receive of a similar nature. Some are more sophisticated than others. All of them have one thing in common. They are trying to cope with the local adjustments required by the disruptions of rapid change. They are frustrated by the presence of federal lands, federal laws, and federal rules. They have no control over a part of their environment: the publicly owned land. They are affected by policies and decisions on that land but cannot anticipate them.

These deep feelings of frustration, regimentation, and helplessness strongly bias people's attitude towards constructive improvements for Rocky Mountain agriculture. These feelings produce two extreme reactions: rebellion and resignation. In between, there are all degrees of discouragement. These feelings block rational approaches to the problems of water supplies, energy, range, and forestry.

I, for one, believe that we in the federal government have an obligation to do something about providing elbow room for self-determination in the development of the Rocky Mountain region.

Giving all the public land back to the states or to private owners is not a real answer. The resources of the Rockies cannot be managed by political boundaries. No one believes that complete private ownership would provide the degree of stewardship required to maintain these resources for future generations.

There is room, however, for more cooperative effort among the federal government, state and local jurisdictions, and the people themselves. There is an urgent need for more public participation in decisionmaking on federal lands, particularly for decisions that affect persons in the same area. We know that the amount of citizen litigation to block unacceptable decisions is directly related to the opportunities for public participation.

President Carter has asked all federal agencies to improve their decisionmaking for significant program actions. Secretary Bergland issued a memorandum calling for greater involvement of the public in our significant decisions.

The decisions of USDA forest supervisors that affect non-federal persons are all subject to administrative review. The Forest Service conducted a massive public participation effort while developing recommendations for wilderness. More than 250,000 responses were received. The planning of the Forest Service in response to the Forest and Rangeland Renewable Resources Planning Act requires public participation. The planning of the Soil Conservation Service in accord with the Soil and Water Resources Conservation Act will include extensive public participation.

Last month, cooperating citizens on the front range of Colorado and the Forest Service completed a successful pilot project on controlling the mountain pine beetle. Private ownership held 44 percent of the 34,000 acres in the project. There were 16 residential subdivisions involved and 4 to 5 thousand people.

From all reports the support and cooperation between private landowners and the Forest Service were excellent. Infested trees were removed, forest stands thinned, the threat of uncontrolled wildlife reduced, fuelwood was made available to meet energy needs, and the scenic quality of the area was restored.

The processes we have developed for public participation are based on the best methodology and experience we have had available. We do not pretend, however, that the procedures developed to date are the best for every need. We know that public participation must be adapted to the special needs of people in specific regions and also the requirements of specific activities.

Therefore, to you in the Rocky Mountains, I offer my services and those of my staff to undertake with you the development of means for increasing public participation in decisions of the Forest Service and the Soil Conservation Service.

You may feel that the agencies included should be greater in number. I suggest, however, that by starting with these two, we might be able to develop a pattern for use with others. Further, Forest Service and Soil Conservation Service represent two extremes in federal presence. One is a large landholder. The other is entirely a service organization.

The physical resources of the Rocky Mountains are among the most valuable and at the same time most vulnerable in the nation. A host of opportunities are available to improve their management so that their great benefits can accrue to you and to generations to come.

If these opportunities are to be realized, you and I, representatives of the people, and local, state, and federal governments must join cooperatively in developing the necessary policies and decisions. That will be no easy task. But when a person senses the magnificence of this region, the dedication of the people in it, and the potential for improvement, one has to conclude that there is no other goal more worthy of the effort.

Thank you.

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